

Example 30

2-(4-Undecylphenyl)pyrimidin-2-yl 5-pentylthiophene-2-carboxylate

Phase sequence X 86 S_A 91 N 111 II

5 Example 31

4-(2-Fluoro-4-undecylphenyl)phenyl 5-pentylthiophene-2-carboxylate

Phase sequence X 41 N 79 I

Example 32

10 4-(5-undecylpyridin-2-yl)-2-fluorophenyl 5-pentylthiophene-2-carboxylate

Phase sequence X 74 N 89 I

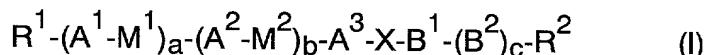
Example 33

4-(5-Undecylpyridin-2-yl)phenyl 5-pentylthiophene-2-carboxylate

15 Phase sequence X 61 S₂ 65 S_C 89 N 112 I

Patent claims

1. An active-matrix display containing a chiral smectic liquid-crystal mixture, wherein the liquid-crystal mixture comprises at least one compound of the formula (I)



where the symbols are as defined below:

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R^1, R^2 are, independently of one another, identical or different and are each

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a) hydrogen, fluorine or CN
a straight-chain or branched alkenyl, alkenyloxy, alkyl or alkyloxy radical (with or without asymmetric carbon atoms) having 2 to 16 carbon atoms, where

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b1) one or two nonterminal $-CH_2-$ groups may be replaced by $-O-$, $-OC(=O)-$, $-(C=O)$, $-C(=O)O-$, $-Si(CH_3)_2-$, $-CH(Cl)-$ and/or one or two $-CH_2-$ groups may be replaced by $-CH=CH-$ or $-C\equiv C-$

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and one or more H atoms may be replaced by F and/or

b2) one or more $-CH_2-$ groups may be replaced by phenylene-1,4-diyl (unsubstituted, monosubstituted or disubstituted by F), phenylene-1,3-diyl (unsubstituted, monosubstituted or disubstituted by F), cyclohexane-1,4-diyl (unsubstituted or monosubstituted by F or CN) or cyclopropane-1,2-diyl

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and one or more H atoms may be replaced by F

with the provisos that only one of the radicals R^1, R^2 can be hydrogen, F or CN and that two adjacent $-CH_2-$ groups cannot be replaced by $-O-$

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M^1, M^2 are, independently of one another, identical or different and are each

$-C(=O)O-$, $-OC(=O)-$, $-CH_2O-$, $-OCH_2-$, $-CF_2O-$, $-OCF_2-$, $-CH_2CH_2-$, $-CF_2CF_2-$, $-CH=CH-$, $-CH=CF-$, $-CF=CF-$, $-C\equiv C-$, $-CH_2CH_2C(=O)O-$, $-OC(=O)CH_2CH_2-$, $-(CH_2)_4-$,

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-OCH₂CH₂CH₂- , -CH₂CH₂CH₂O- , -OCH₂CF₂CH₂ ,
 -CH₂CF₂CH₂O- or a single bond

5 A¹, A², A³ are, independently of one another, identical or different and are each cyclohexane-1,4-diyl (unsubstituted or mono-substituted by F, CH₃, CN), cyclohex-1-ene-1,4-diyl, cyclohex-2-ene-1,4-diyl, 2-oxocyclohexane-1,4-diyl, 2-cyclohexen-1-one-3,6-diyl, 1-alkyl-1-silacyclohexane-1,4-diyl, bicyclo[2.2.2]octane-1,4-diyl, spiro[4.5]decane-2,8-diyl, spiro[5.5]-undecane-3,9-diyl, phenylene-1,4-diyl (unsubstituted, mono-substituted or disubstituted by CN, CH₃, CF₃, OCH₃, unsubstituted, monosubstituted, disubstituted, trisubstituted or tetrasubstituted by F), phenylene-1,3-diyl (unsubstituted, monosubstituted or disubstituted by CN, CH₃, CF₃, OCF₃, unsubstituted, monosubstituted, disubstituted, trisubstituted or tetrasubstituted by F), thiophene-2,5-diyl, thiophene-2,4-diyl, (1,3,4)-oxadiazole-2,5-diyl, (1,3,4)-thiadiazole-2,5-diyl, 1,3-thiazole-2,5-diyl, 1,3-thiazole-2,4-diyl, (1,3)-oxazole-2,5-diyl, isoxazole-2,5-diyl, indane-2,6-diyl, naphthalene-2,6-diyl (unsubstituted, monosubstituted or disubstituted by F or CN), 1,2,3,4-tetrahydronaphthalene-2,6-diyl, decaline-2,6-diyl, pyrimidine-2,5-diyl (unsubstituted or monosubstituted by F), pyridine-2,5-diyl (unsubstituted, monosubstituted or disubstituted by F), pyrazine-2,5-diyl (unsubstituted or mono-substituted by F), pyridazine-3,6-diyl, quinoline-2,6-diyl, quinoline-3,7-diyl, isoquinoline-3,7-diyl, quinazoline-2,6-diyl, 5,6,7,8-tetrahydroquinazoline-2,6-diyl, quinoxaline-2,6-diyl, 1,3-dioxane-2,5-diyl (unsubstituted or monosubstituted by CN), benzothiazole-2,6-diyl, piperidine-2,4-diyl, piperazine-1,4-diyl

30 B¹ is cyclohexane-1,4-diyl (unsubstituted, monosubstituted or disubstituted by F, CH₃, CN), perfluorocyclohexane-1,4-diyl, cyclohex-1-ene-1,4-diyl, cyclohex-2-ene-1,4-diyl, 1-alkyl-1-sila-cyclohexane-1,4-diyl, bicyclo[2.2.2]octane-1,4-diyl, cyclopentane-1,3-diyl, cycloheptane-1,4-diyl, tetrahydrofuran-2,5-diyl, tetrahydrofuran-2,4-diyl, phenylene-1,4-diyl (unsubstituted, monosubstituted or disubstituted by CN, CH₃, CF₃, OCF₃, unsubstituted, monosubstituted, disubstituted, tri-